

HARD BIAS STRUCTURE WITH ENHANCED H_C

ABSTRACT

A magnetic head having a sensor with a free layer, the free layer having a magnetic moment. Hard bias layers are positioned towards opposite track edges of the sensor, the bias layers stabilizing the magnetic moment of the free layer. An antiparallel (AP) pinned layer structure is positioned toward each of the hard bias layers, each AP pinned layer structure having at least two pinned layers with magnetic moments that are self-pinned antiparallel to each other. Each AP pinned layer structure stabilizes a magnetic moment of the hard bias layer closest to it. An antiferromagnetic layer is positioned toward each of the AP pinned layer structures, each antiferromagnetic layer stabilizing a magnetic moment of pinned layer closest to it.